



## **Tubing Sizes and Flow Data**

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# Tubing Selection

The platinum-cured silicone tubing has smooth surfaces and lower protein binding levels with extremely low leachables, high flexibility and great clarity. It's Ideal for pharmaceutical and biotechnology use. The tubing size we mention here is ID x Wall thickness in mm.








Usually we select the right tubing according to the requirement of pressure, working temperature, dimension, regulatory approval and tubing flex life. In addition, we need to consider the chemical compatibility. Please refer to the following link.

<http://goo.gl/BsXKbk>





## 1. Micro Flow Tubing

Tubing Size (mm)		0.5x0.8	1x0.92	2x0.92	2.4x0.92	3x0.92
Cross Section (1:1)						
Inner Diameter (mm)		0.5	1	2	2.4	3
Wall Thickness (mm)		0.8	0.92			
Max Pressure (Mpa)	Continuous	0.1				
	Intermittent	0.1				



## 2. Medium Flow Tubing with 1/16" Wall

Tubing Size		13#	14#	19#	16#	25#	17#	18#
Cross Section (1:1)								
Inner Diameter		0.8mm (1/32")	1.6mm (1/16")	2.4mm (3/32")	3.1mm (1/8")	4.8mm (3/16")	6.4mm (1/4")	7.9mm (5/16")
Wall Thickness		1.6mm (1/16")						
Max Pressure (Mpa)	Continuous	0.17			0.14	0.1	0.07	
	Intermittent	0.27			0.24	0.14	0.1	

## 3. Medium Flow Tubing with 3/32" Wall

Tubing Size		15#	24#	35#	36#
Cross Section (1:1)					
Inner Diameter		4.8mm (3/16")	6.4mm (1/4")	7.9mm (5/16")	9.6mm (3/8")
Wall Thickness		2.5mm (3/32")			
Max Pressure (Mpa)	Continuous	0.17		0.14	
	Intermittent	0.27		0.24	

#### 4. Industrial Tubing with 1.8" Wall

Tubing Size		73#	82#
Cross Section (1:1)			
Inner Diameter		9.5mm (3/8")	12.7mm (1/2")
Wall Thickness		3.3mm (1/8")	
Max Pressure (Mpa)	Continuous	0.17	0.07
	Intermittent	0.27	0.14

### Flow Rate vs Speed

Testing devices: Golander peristaltic drive, pump head and silicone tubing.

Liquid: Water

Testing Environment: Normal temperature and pressure.

Pump head and liquid containers are on the same level. The testing data is for reference only.

The actual flow rate depends on the viscosity of the fluid.

Typical tubing length for both inlet and outlet is 1m if not mentioned.

#### 1. DG6 Pump Head

Tubing length for both inlet and outlet: 0.5m.

DG6(mL/min)							
Tubing ID (mm)	0.13	0.25	0.5	0.76	1	1.22	
rpm	0.1	0.00016	0.0005	0.0022	0.0048	0.0058	0.0108
	1	0.0016	0.005	0.022	0.048	0.058	0.108
	50	0.08	0.25	1.1	2.4	2.9	5.4
	100	0.16	0.5	2.2	4.8	5.8	10.8
Tubing ID (mm)	1.52	1.65	2.1	2.4	2.79	3.17	
rpm	0.1	0.017	0.018	0.021	0.026	0.035	0.049
	1	0.17	0.18	0.21	0.26	0.35	0.49
	50	8.5	9	10.5	13	17.5	24.5
	100	17	18	21	26	35	49

## 2. DG10 Pump Head

Tubing length for both inlet and outlet: 0.5m.

DG10(mL/min)							
Tubing ID (mm)		0.13	0.25	0.5	0.76	1	1.22
rpm	0.1	0.00011	0.00045	0.0018	0.00391	0.00484	0.00796
	1	0.0011	0.0045	0.0177	0.03913	0.0484	0.07961
	50	0.055	0.225	0.885	1.9565	2.42	3.9805
	100	0.11	0.45	1.77	3.913	4.84	7.961
Tubing ID (mm)		1.52	1.65	2.1	2.4	2.79 mm	3.17 mm
rpm	0.1	0.013429	0.014062	0.0161	0.02	0.028	0.041
	1	0.13429	0.14062	0.161	0.2	0.28	0.41
	50	6.7145	7.031	8.05	10	14	20.5
	100	13.429	14.062	16.1	20	28	41

## 3. YZ15 Pump Head (3 Rollers)

YZ15 (mL/min)							
Tubing		13#	14#	19#	16#	25#	17#
rpm	0.1	0.0060	0.0217	0.048	0.0800	0.1667	0.2833
	30	1.8	7	14	24	50	85
	50	3.0	11	24	40	83	142
	100	6.0	22	48	80	167	283
	150	9.0	33	73	120	250	425
	350	21	76	181	280	583	992
	600	36	130	286	480	1000	1700

## 4. YZ25 Pump Head (3 Rollers)

YZ25 (mL/min)			
Tubing		15#	24#
rpm	0.1	0.17	0.28
	30	50	85
	50	83	142
	100	167	283
	150	250	425
	350	583	992
	600	1000	1700

### 5. YT15 Pump Head (4 Rollers)

YT15 (4 Rollers mL/min)								
Tubing		13#	14#	19#	16#	25#	17#	18#
rpm	0.1	0.0060	0.0217	0.048	0.0800	0.1667	0.2833	0.38
	30	1.8	7	14	24	50	85	115
	50	3.0	11	24	40	83	142	192
	100	6.0	22	48	80	167	283	383
	150	9.0	33	73	120	250	425	575
	350	21	76	181	280	583	992	1342
	600	36	130	286	480	1000	1700	2300

### 6. YT25 Pump Head (4 Rollers)

YT25 (4 Rollers, mL/min)					
Tubing		15#	24#	35#	36#
rpm	0.1	0.17	0.28	0.38	0.48
	30	50	85	115	145
	50	83	142	192	242
	100	167	283	383	483
	150	250	425	575	725
	350	583	992	1342	1692
	600	1000	1700	2300	2900

### 7. DT10 Pump Head (8 Rollers)

Note: For the multiple-channel pump head, the flow rate difference between the channels could be up to 10%.

DT10-18 (1 ch), DT10-28 (2 ch), DT10-48 (4 ch), DT10-88 (8 ch), mL/min							
Tubing ID (mm)		0.13	0.25	0.5	0.76	1	1.22
rpm	0.1	0.0002	0.0009	0.0034	0.0080	0.010	0.016
	20	0.046	0.182	0.680	1.600	1.960	3.240
	40	0.092	0.364	1.360	3.200	3.920	6.480
	60	0.138	0.546	2.040	4.800	5.880	9.720
	80	0.184	0.728	2.720	6.400	7.840	12.960
	100	0.230	0.910	3.400	8.000	9.800	16.200
Tubing ID (mm)		1.52	1.65	2	2.4	2.79	3.17
rpm	0.1	0.027	0.028	0.036	0.041	0.057	0.082
	20	5.380	5.660	7.200	8.200	11.400	16.400
	40	10.760	11.320	14.400	16.400	22.800	32.800
	60	16.140	16.980	21.600	24.600	34.200	49.200
	80	21.520	22.640	28.800	32.800	45.600	65.600
	100	26.900	28.300	36.000	41.000	57.000	82.000

Tubing		13#	14#
rpm	0.1	0.005	0.018
	20	1.000	3.600
	40	2.000	7.200
	60	3.000	10.800
	80	4.000	14.400
	100	5.000	18.000

### 8. DT15 Pump Head (4 Rollers)

Note: For the multiple-channel pump head, the flow rate difference between the channels could be up to 10%.

DT15-14 (1 ch), DT15-24 (2 ch), DT15-44 (4 ch), mL/min					
Tubing		19#	16#	25#	17#
rpm	0.1	0.047	0.078	0.177	0.267
	30	14	24	53	80
	100	47	78	177	267
	150	70	118	265	400
	300	140	235	530	800
	350	163	274	618	933
	600	280	470	1060	1600

### 9. KZ25 Pump Head (3 Rollers, PPS, PC or Aluminum)

Note: The KZ25 (PC or PPS) will work with silicone tubing only. KZ25-L (Aluminum) will work with the tubing in various materials

KZ25, KZ25-L (mL/min)					
Tubing		15#	24#	35#	36#
rpm	0.1	0.25	0.43	0.82	1.00
	30	74	130	245	300
	150	370	650	1225	1500
	350	863	1517	2858	3500
	600	1480	2600	4900	6000

### 10. YZ35 Pump Head (3 Rollers)

YZ35(mL/min)			
Tubing		73#	82#
rpm	1	13	22
	10	133	217
	30	400	650
	150	2000	3250
	350	4667	7583
	600	8000	13000

### 11. DMD25 Pump Head

DMD25 (mL/min)					
Tubing		Dual 15#	Dual 24#	Dual 35#	Dual 36#
rpm	1	4.09	6.86	8.29	11.43
	50	204	343	414	571
	100	409	686	829	1143
	150	613	1029	1243	1714
	200	817	1371	1657	2286
	250	1021	1714	2071	2857
	300	1226	2057	2486	3429
	350	1430	2400	2900	4000

### 12. PL48 Pump Head

PL48 (L/min)					
Tubing		193#	88#	191#	92#
rpm	30	0.64	1.11	2.14	2.83
	50	1.07	1.86	3.57	4.71
	100	2.14	3.71	7.14	9.43
	200	4.29	7.43	14.29	18.86
	300	6.43	11.14	21.43	28.29
	350	7.500	13.000	25.000	33.000

### 13. FZ10 Pump Head

Tubing length for both inlet and outlet: 0.5m.

Note: Straps are needed to fix the tubing on the pump head. The pump head will work with silicone, Pharmed or Viton tubing, with wall thickness from 0.85 to 0.92mm.



FZ10(mL/min)							
Tubing ID (mm)		0.89	1.14	1.52	2.40	2.79	3.17
rpm	0.1	0.005	0.007	0.012	0.029	0.032	0.045
	10	0.57	0.72	1.27	2.90	3.20	4.500
	20	1.15	1.45	2.55	5.90	7.50	9.000
	40	2.10	2.90	5.10	11.80	15.00	18.000
	60	3.25	1.35	7.60	17.70	22.50	27.000
	80	4.20	5.80	10.20	23.60	30.00	36.000
	100	5.25	7.25	12.75	29.50		
Tubing ID (mm)		1.02	2.06				
rpm	0.1	0.005	0.019				
	10	0.57	1.90				
	20	1.15	3.80				
	40	2.30	7.60				
	60	3.45	11.40				
	80	4.60	15.20				
	100	5.75	19.00				

#### 14. DW10 Pump Head

Tubing length for both inlet and outlet: 0.5m.

Note: Straps are needed to fix the tubing on the pump head. The pump head will work with silicone, Pharmed, PVC or Viton tubing with 0.25-3.17mm ID, 0.8 to 1mm wall thickness.

DW10-X (mL/min)							
Tubing ID (mm)		0.76	1.0	1.3	1.6	2.0	2.4
rpm	0.1	0.003	0.005	0.008	0.012	0.015	0.024
	10	0.30	0.50	0.80	1.20	1.50	2.40
	30	0.90	1.50	2.40	3.60	4.50	7.20
	50	1.50	2.50	4.00	6.00	7.50	12.00
	80	2.40	4.00	6.40	9.60	12.00	19.20
	100	3.00	5.00	8.00	12.00	15.00	24.00
Tubing ID (mm)		2.79(for 1 or 3-ch head only)	3.2 (for 1 or 3-ch head only)				
rpm	0.1	0.033	0.043				
	10	3.25	4.30				
	30	9.75	12.90				
	50	16.25	21.50				
	80	26.00	34.40				
	100	32.50	43.00				

### 15. DW15 Pump Head

Tubing length for both inlet and outlet: 0.5m.

Note: Straps are needed to fix the tubing on the pump head. The tubing could be silicone, Pharmed, PVC or Viton tubing with 0.25-3.17mm ID, 0.8 to 1mm wall thickness.

DW15-X (mL/min)						
Tubing		13#	14#	19#	16#	25#
rpm	0.1	0.003	0.012	0.024	0.041	0.080
	10	0.30	1.20	2.40	4.10	8.00
	30	0.90	3.60	7.20	12.30	24.00
	50	1.50	6.00	12.00	20.50	40.00
	80	2.40	9.60	19.20	32.80	64.00
	100	3.00	12.00	24.00	41.00	80.000

### 16. BZXX Pump Head (3 Rollers)

Tubing length for both inlet and outlet: 0.5m.

Note: The pump head will work with Pharmed, Viton tubing.

BZXX-XX (mL/min)				
Tubing		BZ25-24#	BZ25-15#	BZ15-16#
rpm	0.1	0.2833	0.1667	0.0800
	100	283.33	166.67	80.00
	200	566.67	333.33	160.00
	300	850.00	500.00	240.00
	400	1133.33	666.67	320.00
	500	1416.67	833.33	400.00
	600	1700.00	1000.00	480.00

### 17. WMDXX Pump Head (3 Rollers)

Tubing length for both inlet and outlet: 0.5m.

WMDXX-XX (mL/min)				
Tubing		WMD15-14#	WMD15-16#	WMD15-17#
rpm	0.1	0.02	0.08	0.28
	100	22	80	283
	200	43	160	567
	300	65	240	850
	400	87	320	1133
	500	108	400	1417
	600	130	480	1700